S3 END OF TERM 2

CHEMISTRY 2

TIME 1:30MINUTES

Scenario

A Pharmaceutical company deals in making Sulphur ointments for treating skin diseases. The Sulphur is formed by reacting Hydrochloric acid with Sodium thiosulphate solutions.

Sodium thiosulphate solution reacts with Hydrochloric acid according to the equation below

$Na_2S_2O_3(aq) + 2HCl(aq) \longrightarrow 2NaCl(aq) + S(s) + H_2O(l) + SO_2(g)$

The formation of Sulphur is noted by the disappearance of the cross mark on the white sheet of the paper placed beneath reaction flask/container.

There's a rapid spread of skin infections in a near-by refugee camp and therefore a need to increase the rate of Sulphur formation to meet the high demands of Sulphur ointment. The Company's chemical engineer is exploring if increasing the concentration of BA2 (hydrochloric acid) solution can help them make a timely production.

This is done by reacting different diluted volumes of BA2 with fixed volume of sodium thiosulphate solution (BA1) and noting the time taken for the disappearance of a cross on the adhesive sticker on the table placed under a reaction flask.

You are provided with;

30cm3 of BA1 which is sodium thiosulphate solution

60cm3 of BA2 which is hydrochloric acid solution

Distilled water.

Other necessary apparatus

Task

a) Design an experiment you can carryout to address the concern of the chemical engineer. (Your experiment MUST include Aim, Hypothesis, Variables, Procedures, and Risks and mitigations)

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b) Table of results (minimum of 5 values)

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c) Analysis of results (A graph)
d) Data interpretation

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e) Conclusion and recommendation

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